

CLAIMS:

1. (After amendment) A processing apparatus for processing a substrate on a surface of which a film is formed, comprising:
5 a film removing member for selectively removing the film on a predetermined portion of an outer peripheral part of the substrate; and
 a rotating mechanism for rotating the substrate,
 said film removing member having a shape which is composed of a vertical part, an upper part formed in a horizontal direction from an upper end part of the vertical part, and a lower part formed in a same direction as the horizontal direction from a lower end part of the vertical part, being formed so that the outer peripheral part of the substrate is allowed to be inserted into an opening which is formed by the upper part and the lower part, and including a plasma supply part for supplying plasma of a reactive gas to the film on the predetermined portion and a suction port for sucking an atmosphere in a vicinity of the predetermined portion from outside the substrate, and
10 15 said plasma supply part being attached to a ceiling surface inside said film removing member surrounded by the vertical part, the upper part, and the lower part.

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2. (Deletion)

3. (Deletion)

- 25 4. (After amendment) The processing apparatus as set forth in claim 1,
 wherein

said suction port is provided inside said film removing member and at a position facing the opening.

5. The processing apparatus as set forth in claim 1, wherein
5 said plasma supply part is provided in a portion facing the predetermined portion in said film removing member, and said suction port is provided outside said plasma supply part.
- 10 6. The processing apparatus as set forth in claim 5, wherein
10 said plasma supply part is provided in a portion facing the predetermined portion in said film removing member, and said suction ports are provided facing to each other with said plasma supply part therebetween.
- 15 7. (Deletion)
- 15 8. The processing apparatus as set forth in claim 1, further comprising:
15 a horizontal driving part for horizontally moving said film removing member.
- 20 9. The processing apparatus as set forth in claim 1, further comprising:
20 a controlling part for controlling a suction pressure of said suction port.
- 25 10. The processing apparatus as set forth in claim 1, wherein
25 said plasma supply parts are provided at plural positions along a radial direction of the substrate in said film removing member.

11. The processing apparatus as set forth in claim 1, wherein
said plasma supply parts are provided at plural positions along a
circumferential direction of the substrate in said film removing member.

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12. The processing apparatus as set forth in claim 1, wherein
said plasma supply part is an emitting part of a ray for converting the
reactive gas into the plasma.

10 13. The processing apparatus as set forth in claim 10, wherein
said film removing member further includes a reactive gas jetting part
for jetting the reactive gas.

14. (Deletion)

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15. (Deletion)

16. (Deletion)

20 17. The processing apparatus as set forth in claim 1, further comprising:
a removal solution discharge nozzle for discharging a removal
solution to the outer peripheral part of the substrate to remove the film on the
outer peripheral part, in addition to said film removing member.

25 18. The processing apparatus as set forth in claim 1, further comprising:
a coating solution discharge nozzle for discharging a coating solution

to the substrate to form the film on the substrate.

19. The processing apparatus as set forth in claim 1, further comprising:
 - 5 least an outer peripheral part of a surface, which is different from the surface on which the film is formed, of the substrate.
20. The processing apparatus as set forth in claim 1, further comprising:
 - 10 a heating unit for heating the substrate by an infrared ray.
21. A processing method for processing a substrate on a surface of which a film is formed, comprising the step of:
 - 15 forming in the film on an outer peripheral part of the substrate a sloped part such that its film thickness becomes thinner toward an end part.
22. The processing method as set forth in claim 21, further comprising the steps of:
 - 20 selectively removing the film on a portion of the outer peripheral part of the substrate; and
 - forming the sloped part such that its film thickness becomes thinner toward the portion from which the film is removed.
23. The processing method as set forth in claim 21, further comprising the step of:
 - 25 oxidizing a surface of the sloped part.

24. The processing method as set forth in claim 23, wherein the oxidation is performed by supplying oxygen radicals.